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Failure-Avoidance in Situational Information Utilization and Problem Solving

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Psychological Monographs: General and Applied

Failure-Avoidance in Situational Interpretation and Problem Solving[1]

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I. THE PROBLEM

THE IMPORTANCE of understanding the relationship between personality factors and problem-solving behavior has recently become apparent (4, 10, 18). The purpose of the present study was to investigate several hypotheses concerning the relationship beween personality and problem-solving factors *under negative conditions.* That an individual's reaction to a negative state of affairs in the environment is important becomes apparent when one notes the numerous personality constructs employed to conceptualize such reactions: stress tolerance, frustration tolerance, ego strength, and tolerance for ambiguity. It is implicitly assumed in the use of such constructs that a person's inability to cope with environmental adversity is more or less central to many adjustment problems; such an assumption is explicitly supported in the repeated incidence noted in case histories of a negative condition in the patient's life situation precipitating a breakdown in adjustment. Therefore, we felt justified in our selection of *failure* and *criticism* conditions for study, and have accordingly employed these situational conditions not only as experimentally induced conditions, but also as conditional items in personality measures.[2] Such a restriction of conditional (or situational) variance represents our agreement with Rotter (19) on the importance of taking account of, and if possible controlling, the psychological situation. It is not unlikely that much of the previous difficulty in accounting for interindividual variance in problem solving by the use of personality instruments

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[2] A part of one section (V) also noted reactions to praise conditions, but here also the relevant personality items were appropriate to the experimental condition in question, i.e., praise.

(e.g., 8) has been due to the implicit lack of recognition of such situational specificity, as evidenced by the previous use of general measures such as the Rorschach.

This study investigates a number of hypotheses bearing either directly or indirectly on the defensive process of *avoidance*. Other descriptive terms such as denial or blame-projection (17) are closely related to our use of avoidance. In our use of the term avoidance we will mean *a behavior or interpretation directed away from a situational event*. For example, in the situation of failure, a person's quitting a task when he is performing poorly may be considered failure-avoidance *behavior*, while a person's refusal to perceive the possibility of his own inadequacy under these same situational circumstances may be regarded as an *interpretation* directed at avoiding failure.

Section II describes a method for measuring four behavioral variables in a single problem-solving situation under conditions of failure and presents the relationships between these measures. Using primarily speed and error measures, previous studies (e.g., 13) have demonstrated that failure increases interindividual performance variation. Regarding this disruptive effect of failure upon the performance of certain subjects (*Ss*), Lazarus and Eriksen state, "It is also possible that some *Ss* did much worse on Test 2 because they became disgusted by the whole situation, or so threatened that their response was *to give up or to 'psychologically leave the field'* " (13, p. 103, italics ours). Since avoidance is a potentially important response to failure, we therefore devised a behavioral method to permit an objective measure of this "leaving the field" response, along with three other measures.

Section III describes a personality measure intended to assess the probability of a person's making an *avoidant interpretation* to a failure situation, i.e., refusal to perceive that he might be failing. In Section IV the relationship between this failure-avoidant interpretation measure and failure-avoidant behavior is explored. Implicit in our conception of failure-avoidant interpretation is an underlying defensive process which prevents the individual from lowering his evaluation of himself under negative conditions. Sections V and VI therefore investigate the relationship between failure-avoidant interpretation and self-evaluation following experimentally induced negative conditions.

II. Relationship of Failure-Avoidant Behavior to Expectancy, Behavioral Alteration, and Errors in a Problem-Solving Situation

This section has two aims: (*a*) to develop a method for describing an individual's behavior in a problem-solving situation along four behavioral dimensions—expectancy, looking for alternative solutions, quality of performance, and failure-avoidance; and (*b*) to study the relationship of failure-avoidant behavior to the other three measures. These variables are referred to as behavioral measures because each one can be measured by direct observation. Although the present study used behavioral measures, it is assumed that such data differ from personality test data only in the method employed and not in the nature of the variables involved. After measuring the interindividual variability on several behavioral variables, one can then undertake the problem of accounting for this

variance through the use of personality constructs and derived instruments.

The importance of failure-avoidant behavior has been previously discussed and may be re-emphasized by noting that if an individual leaves or avoids the problem it is obvious that there can be no solution. Therefore, because avoidance occupies this central position in the problem-solving process, all hypotheses were formulated relative to avoidance. The other three variables selected for study have been employed and discussed previously in the literature, though not always in a problem-solving context and not always with the same operations used here. Definitions of the four measures follow:

a. Failure-avoidant behavior: extent to which *S* avoids a situation in which he is receiving gradually increasing failure by selecting a different goal rather than continuing to strive toward the same goal.

b. Expectancy or goal-getting behavior (20): the score which *S* reports that he actually expects to make on the next trial, i.e., the traditional level-of-aspiration measure.

c. Behavioral alternation or looking for alternative solutions (23): the number of times *S* changes his solution or approach while striving toward the same goal. This variable has been previously assumed to be of importance as indicated by the following statement from Eriksen, Lazarus, and Strange: "Giving subjects false information that they are failing may cause some of them to alter their mode of attack on the problem" (8, p. 284).

d. Quality of performance (6): relative error measure based on pre- and post-failure performance.

The following hypotheses were tested:

1. That failure-avoidant behavior will be directly related to expectancy, i.e., *Ss* who set high goals will be more likely to avoid the failure situation. Since high goal-setting behavior has been previously regarded as "unrealistic" (18, 21), we assumed that such behavior therefore represented one form of avoidance.

2. That failure-avoidant behavior will be inversely related to behavioral alternation, i.e., *Ss* who use fewer solutions will be more likely to avoid the failure situation. In a previous study investigating behavioral alternation, Schroder and Rotter (23) have suggested that rigid behavior (i.e., not looking for alternative solutions) may be viewed as one form of avoidance as follows: "The avoidance behavior itself may be regarded as a single solution which is regularly reinforced by preventing the reoccurrence of some trauma, thus providing the conditions making for single solution learning" (23, p. 148).

3. That failure-avoidant behavior will be directly related to performance disruption, i.e., *Ss* who make more errors after failure will be more likely to avoid the failure situation. This hypothesis is based on the assumption that the tendency to make errors following failure stems from the same kind of defensive process which leads to failure-avoidant behavior.

In the method described the problem-solving situation consists of an insoluble sorting problem with six available but incorrect solution pathways to a desired goal. The *S* is free to use as many or as few of the available solutions as he chooses, and is also free to avoid the situation by choosing an alternative goal (i.e., a different problem), or to continue to try to reach the same goal. Progress toward this goal was indicated by controlled scores given by *E* as well

as *S*'s knowledge that his solution was incorrect. In previous studies, failure has frequently been induced either by a combination of referents, e.g., social reproof accompanied by a low score (22), or by very strong failure stimulation (14). The present method utilizes a technique of minimal and gradually increasing failure with increasing trials. An attempt was made to specify the failure stimulation as much as possible so that only the score given to *S* would be the referent for failure. Since the induction of failure inevitably involved an interpersonal situation between *E* and *S*, it became important to insure that the experimental condition and the obtained results could be replicated. Therefore, two separate investigations using the same method were carried out in different localities for purposes of cross validation.

A. Method

1. *Subjects*

Group A: 57 male freshmen psychology students at University A.

Group B: 78 male freshmen who had not been in a psychology course, secured from the student employment service at University B.

2. *Materials*

a. A sorting box containing four slots and so constructed that *S* was unable to see a card after it had been sorted.

b. Task 1 was an insoluble card-sorting problem with six theoretically possible solutions. On each trial, a pack of 12 cards was used, each card containing a cue variation of six major concepts: color of card (blue, yellow, pink, and green); position of letter (upright, left, right, and inverted); nonsense syllable (MUV, REB, NUS, and JOH); form (circle, square, triangle, and pentagon); number of forms (from one to four); and color of form (black, gray, white, and red). Each major concept was varied throughout the 12 cards by the four cue variations indicated parenthetically so that one slot in the problem-solving box could be used for each variation in the major concept (solution) which *S* chose to use. For example, the first card was constructed as follows: blue card (card color); letter inverted; MUV (nonsense syllable); two (number) white (color of form) squares (form). The distribution of four cues within each major concept was always 4:3:3:2 so that it was impossible to achieve the instructed goal of obtaining an equal distribution without making an error. Four different packs were employed and the cards were presented to *S* in a constant order which maximized the distribution of cues over the four slots during the early sorts.

c. Task 2 was present only so that *E* could point to it during the instructions, since the experiment was completed whenever *S* left Task 1. Task 2 consisted of a series of questions typed on sheets of paper and placed in a folder.

d. Sets of norms which *E* used ostensibly to calculate *S*'s score after each trial.

e. Score slips and record sheets, used as described in procedure.

3. *Instructions*

The experiment was carried out by two *E*s in two different localities using identical instructions and procedure. The instructions[3] presented the problem as follows: *Task 1* was structured as a measure of decision-making ability and leadership potential, and *Task 2* was structured as a *different* task measuring a different ability, creative intelligence. The instructions were designed to induce ego involvement and to emphasize the importance of succeeding by pointing out the relationship between these measures and postcollege success. Then *E* continued as follows:

"Task 1 (pointing) measures the manner in which you handle decision making or, more generally, your leadership potential. It consists of sorting or organizing packs of 12 cards into four groups differing along a single characteristic. The aim is to sort the cards into four groups (pointing to four boxes)." Examples were then given to insure that *S* understood the nature of the problem. Then *E* continued:

"When I tell you to start, you will select a single card, look at it, make your decision about grouping and place it in one of the boxes. Note that you cannot see a card again once it is sorted into one of these sorting boxes (pointing). Then select a second card from the supply box and sort it. Continue selecting cards one at a time and sorting them into one of the four relevant sorting boxes until the 12 cards are used.

[3] Detailed instructions for all procedures may be obtained from the authors.

"Your score will then be worked out by me on the basis of the following:

"First, your score will depend upon the distribution of the cards. The more even the distribution of the cards over the four boxes, the higher the score. Of course, the best solution is four groups of three each. The nearer this is approached, the higher the score and the lowest score would be for 12 cards in one box.

"Second, your score will depend upon the time taken, so you should work as fast as you can.

"Third, your score will depend upon the errors made. An error consists of placing a card in the wrong box.

"And, last, your score will depend also upon your general approach to the problem.

"Unlike most other tests you have probably taken, in this task you will be given a good deal of information. This is because it is a test of your decision making. After each trial your score will be worked out by me. Once the test starts, there should be as little talking as possible. In order to facilitate this, I will pass the score you actually made on that trial to you on a slip of paper like this (hand score slip to *S*). At this point you can enter your score on the record sheet provided (hand record sheet to *S*) for your own information. After you have entered your score you have two things to record on this slip.

"First, select the task which you wish to try on the next trial. This choice is up to you. It is perfectly OK if you want to leave Task 1 and try something else after any trial.

"Second, enter the score that you actually expect to make on the next trial. When this is done, pass the sheet back to me and wait for me to give you the signal to start (take slip from *S*).

"Now on this task do not pay any attention to the back of the cards. The symbols there are for identification purposes only and have nothing to do with the task. Select only one card at a time, turn it over so that you can see the front, make sure it is not upside down, then place it in one of the boxes and select another card. Remember to sort on the basis of a single characteristic. When you have sorted all 12 cards, say "finished" so that the exact time can be recorded. The materials may differ from trial to trial, but the problem remains the same. This task is not essentially difficult, but your initial reaction to the task will very likely be that it is a little complex. However, as you go along you will most probably see the basis of the solution. Since your score is based on a number of different factors—distribution, speed, errors, and approach—your score should get higher since improvement may occur on any one of these factors. That is, you should improve as you go along . . . up to a level of somewhere between 30 and 40 which is the average for college freshmen. Are there any questions? Do as well as you can . . . ready begin."

4. *Procedure*

After each trial, *E* entered the time taken and the code number of the cards placed in each sorting box. The *E* then referred to the "norms" and entered *S*'s predetermined score on a slip of paper which he passed to *S* (in order to minimize any possible biasing effects of extraneous social factors). The slip contained three statements:

"Your score on trial ..... was .....
Check *a*. or *b*.
a. Desire to continue with task 1 .....
b. Desire to try task 2 .....
Write down the score you actually expect to make on the next trial ....."

The *S* entered his score on the record sheet provided, checked one of the two tasks, recorded his expectancy, and returned the slip to *E*. The *E* inspected the slip to note the task choice, placed the next pack of cards in position (four packs of cards were rotated throughout the trials) and signalled *S* to begin the next trial. This procedure was continued until *S* selected Task 2 or until the twelfth trial had been reached. In either case, a half-hour interview related to *S*'s attitude toward the problem and attempted solutions was then conducted. Following this interview, *S* was informed of the true nature of the experiment and requested not to discuss the experiment with other students.

5. *Score Pattern*

The score pattern for consecutive trials was: 9, 13, 16, 20, 21, 22, 22, 21, 20, 18, 17, and 15 (e.g., score on the fifth trial was 21). The early scores were low relative to the instructions and the expectations of college students. The scores advanced to a point still below the minimal goal, leveled off, and then decreased markedly. It was assumed that *S* would react to each score in terms of certain elements in the instructions which indicated that *(a) S* should improve with practice, and *(b)* a good score would be 30 or more.

6. *Operations and Scoring*

The cards were code-numbered so that *E* could identify both the concept (solution) used on a given trial and the number of errors. Objective scoring was possible in all except three or four cases where the solution for a single

trial was doubtful. In these cases, *S*'s report in the interview of the solution used was accepted. An error was defined as a misplaced card in terms of the concept being used for sorting on that trial. Expectancy and avoidance measures were directly available on the score slip filled out by *S*.

Since *S* was free to leave Task 1 at any time after the first trial, it was necessary to make some arbitrary decision regarding the trial an *S* must reach before he would be included in analysis. Trial 5 was selected because this was the first point at which the score pattern began to level off. That is, if *S* left Task 1 before Trial 5 it is likely that he either misunderstood the instructions or placed a higher value on Task 2, and in either instance he should be excluded. Therefore the use of Trial 5 as the cut-off point should provide a good sampling of *S*'s behavior on the variables under consideration.

Of the total of 135 *Ss* in both groups, 44 were dropped for the following reasons: 25 because of their selecting Task 2 before Trial 5; 13 because of their previous participation in an earlier experiment involving false scores which led to their being suspicious of scores as indicated in interviews; three because of their color blindness; and three because of their misunderstanding of the instructions and sorting on the basis of the code numbers on the back of the cards.

The following measures were used for each variable: *(a) Failure-avoidant behavior* was measured by trial at which *S* selected Task 2 or left Task 1; since the experiment was discontinued after Trial 12, an avoidance score of 13 indicated that *S* did not leave Task 1 at all (and this would be considered low avoidance). *(b) Expectancy* was calculated by adding *S*'s expectancy scores for the first four trials. *(c) Behavioral alternation* was measured by counting the number of solution alternations during the first five trials, giving a range of 0 to 4. *(d) Quality of performance* was measured by comparing the errors on the same solution before and after Trial 5; i.e., as failure stimulation increased, did errors increase, remain the same, or decrease? This relative measure was calculated by comparing the number of errors *S* made on a given solution on Trial 6 with the number of errors made on the previous trial in which that solution was employed. If *S* used a new solution on Trial 6, the next trial for which an earlier solution was available for comparison was used (this procedure of comparing relative error-making tendencies only on the same solution was intended to control for the differential difficulty level of the six solutions).

B. Results

Table 1 gives the cutting points and number of *Ss* for each of the four variables in Group A, Group B, and combined group. With the exception of the error measure, a pooled distribution of the two groups combined was used to establish cutting points which would yield the most nearly equal number of *Ss* in each subgroup. Using this procedure, avoidance and alternating were split

TABLE 1

GROUP AND COMBINED DISTRIBUTIONS FOR BEHAVIORAL MEASURES

Group	Expectancy				Alternating			
	61–72	73–79	80–89	90–102	0–1	2	3–4	*N*
A	11	12	11	8	15	11	16	42
B	12	13	12	12	21	11	17	49
Total	23	25	23	20	36	22	33	91
	Errors*				Avoidance			
	Decr.	Same	Incr.	*N*	12–13	9–11	5–8	*N*
A	11	18	11	40	18	13	11	42
B	13	14	15	42	16	14	19	49
Total	24	32	26	82	34	27	30	91

* The group totals for errors are 40 and 42 from Groups A and B rather than 42 and 49 since error measures do not include *Ss* who switched to Task 2 at Trial 5.

TABLE 2

RELATIONSHIP OF EXPECTANCY, ALTERNATING, AND ERRORS TO FAILURE-AVOIDANCE

Hypothesis	Group	χ^2	*df*	*p*	ϵ^*	*F*	*df*	*p*
1. Expectancy-avoidance	A	18.002	6	$<.01$				
	B	11.188	6	$<.10$				
	Total	29.190	12	$<.01$	.41	2.02	18/72	$<.05$
2. Alternating-avoidance	A	8.200	4	$<.10$				
	B	6.990	4	$<.20$				
	Total	15.190	8	$<.06$	.33	3.75	4/86	$<.01$
3. Errors-avoidance	A	14.820	4	$<.01$				
	B	6.663	4	$<.20$				
	Total	21.483	8	$<.01$				

* The epsilon reported is that of the regression of avoidance on the other variable, e.g., expectancy, since the hypotheses were stated in this form and the measures obtained in that order.

in thirds, and expectancy in fourths. The error measure was split according to the logical procedure of errors decreasing, remaining the same, or increasing as failure stimulation increased since these three categories yielded groups of fairly equal size.

The groupings in Table 1 were used to calculate chi-square values for testing the hypotheses, as summarized in Table 2. In addition, the degree of relationship existing in Hypotheses 1 and 2 was evaluated by the use of epsilon (since the avoidance distribution was obviously nonnormal) computed on the basis of raw scores rather than grouped data. Epsilon was not calculated for Hypothesis 3 since quality of performance was a relative measure.

Hypothesis 1. Avoidant behavior is directly related to expectancy. That is, *Ss* who set high goals are more likely to avoid the situation while low-goal-setting *Ss* are more likely to continue to strive toward the same goal under failure conditions.

Hypothesis 2. Avoidant behavior is inversely related to behavioral alternation. Although the relationship as reflected by chi-square value is at borderline significance ($< .06$), the epsilon value ($p < .01$) indicates a significant degree of relationship. This rigidity-avoidance relationship was further substantiated by observing that failure to alternate solution on Trial 6 was related ($< .10$) to avoidant behavior.

Hypothesis 3. Avoidant behavior is directly related to performance disruption after failure stimulation increased. Since this hypothesis was necessarily tested without any reference to these *Ss* for whom the relationship would be most appropriate (i.e., the nine *Ss* who left Task 1 at the earliest sign of failure on Trial 5 and therefore had no post-failure performance measure for comparison), the performance disruption-avoidance relationship seems amply supported.

No relationship was noted between any two of the other three variables (expectancy, alternating, and errors) with *p* levels ranging from .30 to .50.

C. *Postexperimental Interviews*

The usual function of interviewing *Ss* following conditional experimentation is

to obtain a relatively independent index of the extent to which the experimental variable has been induced. Viewed simply, *E* would therefore be primarily interested in *S*'s stating verbally that he felt he had failed. However, such a viewpoint overlooks the defensive nature of verbalization. Particularly in the present study utilizing minimal failure stimulation and focusing on avoidant behavior, we did not expect all *S*s to verbalize feelings of failure. If one considers the interview protocols from a defensive point of view there is no reason to question the successful induction of failure stimulation. However, it is equally clear that there is wide variation in the verbalizations made by *S*s when describing their reactions to the situation.

Since the results of the objective measures indicated a configural behavioral pattern revolving around failure-avoidant behavior, we attempted to extend this pattern further by noting the verbalizations made by avoidant and nonavoidant *S*s. It is true, of course, that the nonavoidant *S*, by virtue of his staying with the task, experienced more intensive failure than the avoidant *S*, but even with this difference in experience it appeared potentially useful to note his interview responses. One of the most fruitful questions was "How did you happen to select Task 2 at that point?" i.e., in effect, "Why did you elect to avoid the situation at that point?" When responses of *S*s who left the task at Trial 5 or 6 (at the earliest signs of failure) were compared with responses of *S*s who did not leave the task until Trial 12, pronounced differences were noted between the groups. The verbalizations of the avoidant group were primarily of the following variety: "I had done as well as I could," "Didn't think I could do any better," or "Getting tired of this one." On the other hand the responses of the nonavoidant *S*s were primarily of the following nature: "Wasn't doing very well so decided I'd better quit," "About time for me to give up," and "Better stop because I was getting worse."

In view of these responses it seemed reasonable to hypothesize that such variation in interpretations of failure might partially account for the configuration of relationships which emerged. That is, the nonavoidant *S* who persisted in looking for other solutions with a minimum of disruption in performance may have behaved in this fashion at least partially because *he interpreted the situation as one in which he was failing.* Conversely, the avoidant *S* might be described as defending himself against failure by behaving in such a way as *to prevent the occurrence of any situation which he might have to interpret as failure.* Further exploration of the possibility of such a relationship will be described in the next two sections.

III. Situational Interpretation Experiment

The situational interpretation experiment (SIE) described here represents a method for measuring how an individual interprets (or perceives) a situation. The primary aim was to measure an individual's tendency to make avoidant interpretations to negative conditions (criticism or failure); the secondary aim was to measure an individual's interpretation of several other situational conditions, e.g., praise and success. Postexperimental data in the first study as well as general agreement in personality theories indicate that a person's perception or interpretation of a situation is of major importance in determining which subclasses

of (the otherwise almost infinite number of) behaviors he will employ in that situation. Since the intervening process of interpretation occupies such a pivotal position in determining responses, it seemed important to attempt to measure such interpretations directly.

It is presently assumed that individuals categorize or summarize their past experiences into systems or concepts or relative constancies (5, 12, 19). Since few situations are ever exactly repeated the individual must generalize in order to adjust effectively to changing conditions or to utilize past experiences effectively. This process of generalization is assumed to result in a tendency to behave in a more similar manner in two or more situations.

Central to the present position is the assumption that, in order to adjust effectively to a situation of failure, an individual must admit that he is doing poorly, that he is in some way inadequate, or that he is, in fact, failing. We assumed that when an *S* interprets a failure situation by thinking "This means I'm not very good at this," that such an interpretation implies an admission of some personal *inadequacy or self-negation*. It should be emphasized that we are *not* using the term "inadequacy" in its usual sense which implies behavioral ineffectiveness. In contrast, we mean by "inadequate" that the individual is willing to consider possible weaknesses to admit that he *may* be wrong, thus opening the possibility for modifying his behavior. In considering other possibilities of interpreting a failure situation it is obvious, though nonetheless important, that individuals may avoid making negative interpretations by a host of defensive interpretations, e.g.; *S* may think "This is too difficult for anyone to do. . . . I'm doing all right however," or "I was just unlucky." Indeed, the entire gamut of defenses emanating from avoidance processes may be considered as functioning to prevent interpretations of personal inadequacy. We will refer to this tendency to avoid making self-negative interpretations to negative conditions as *avoidant interpretation*.

The method outlined here is referred to as a situational interpretation experiment because the individual is confronted with a number of hypothetical situations and then forced to make a choice between two possible interpretations of each situation. His choice of interpretation then becomes the operation for describing the concept the individual used for integrating that particular situational event. *When it has been established that an event, e.g., failure, falls within a given system of integration, e.g., self-evaluation, it is said to be interpreted in a given way.* This method allows a number of observations of each event, in addition to sampling a range of events. It also permits providing various potential interpretations to be used, although in the present form of the SIE we have dealt only with the conceptual system of self-affirmation and negation. (In considering interpretations of positive situations we would not, of course, make the same assumption of avoidance-adequacy equivalence that we made in relation to negative situations, since there is no necessary defensiveness implied in a person's feeling adequate after success.)

A. Method

1. Instructions

All *S*s were requested to read the face sheet containing instructions which read as follows: "This is a test of how well you can make decisions. The decisions you have to make are not

always easy. In each of the questions you are given a short story about something that is happening. The story gives all the information about what is happening but it does not say anything about the thoughts a person would have if he were in the story. Your task is to complete the story by deciding which thought would follow. In each case one of the two thoughts is a better answer than the other. You are to select the one which is the truest. Read the stories carefully. Ask if you do not understand anything. Make your decisions accurately."

2. *Description of Method*

The total scale consisted of 30 items,[4] but the criticism-failure (CF) subscale consisting of ten items below was the primary measure. It will be noted that this subscale is made up of four criticism items, two verbal failure items, and four failure items which may be regarded separately for certain purposes. As the SIE was presented to *S* the same stem, i.e., situation, was sampled a number of times with different alternatives and randomized throughout the test. However, the stem and alternatives are grouped together below with their position in the test indicated by item number. *Self-negative alternatives are indicated by asterisks.*

a. Criticism condition:

You are trying to work out some decisions about a plan of yours. You hope that the plan will be a good one for you. One of the people in charge of the project comes by. He glances at your plans and says that you don't seem to be doing it right, that your plan doesn't seem to be very good. Which is the most correct thought to have?

Item #7 (a) "He must be mistaken."
(b) "I'm just not up to it."*

Item #10 (a) "This shows that I'm no good here."*
(b) "This means that he cannot understand my work."

Item #15 (a) "He must be right."*
(b) "This shows he knows nothing about it."

Item #18 (a) "He knows I'm not doing very well."*
(b) "It's OK, if there's anything wrong it's only an unlucky mistake."

b. Verbal failure condition:

You are working on a task and hope to do well. Someone looks at your work and says that you are not doing very well here. Which is the most correct thought to have?

Item #2 (a) "He must be wrong."
(b) "I'm not doing very well here."*

Item #29 (a) "I still think it's OK"
(b) "He can see my weaknesses."*

c. Failure condition:

You have been working on a project and you have a strong desire to do well and finish it. At times you have felt that it was giving you a little trouble and now it seems that you will fail at it. Which is the most correct thought to have?

Item #9 (a) "It is very seldom that I fail."
(b) "This shows that I'm not up to it."*

Item #13 (a) "This shows that the project must be a very hard one."
(b) "This shows that I might not be so good."*

Item #19 (a) "This is too difficult for anyone to do."
(b) "If I cannot do this it is bad."*

Item #27 (a) "I must have been unlucky here."
(b) "This means I'm not very good at this."*

d. The remaining twenty items were divided as follows:

Praise: four items
Success: four items
Help: four items
Remote praise:[5] four items
Verbal praise: two items
Peer praise: two items

3. *Scoring*

It was arbitrarily decided to score the number of "inadequate" or nonavoidant responses in order to arrive at a CF subscale score. The hypothetical range of scores is from 0 to 10, and a low score on this subscale will be referred to as avoidant interpretation. In the case of the other subscales the "inadequate" interpretations were also tallied for scoring.

The present scale is the fourth modification. Apart from modifying items which would yield more equal splits, the major change in this last modification was to substitute an adult as the agent of criticism (and also praise) in place of the peer figure which had been used in earlier

[4] Copies of the full scale in its complete form are available on request from the authors.

[5] From S. S. Tomkins, *A model of the human being.* Unpublished. Remote praise refers to a situation containing the subject and at least one other person when the other person is being praised.

forms. The effect of this change is discussed below.

4. *Procedure*

The SIE was administered to 500 white boys between the ages of 13 and 18 during the summer of 1955. The *Ss* were drawn from YMCA camps, Boy Scout camps, public and private schools. Approximately half of the *Ss* were secured on a volunteer basis and half of the *Ss* were tested in total groups. The testing was carried out in groups ranging in size from 5 to 80. No time limit was set but the time taken ranged from 15 to 30 minutes. In every case the SIE was administered immediately following the Sentence-Completion Method (11) and was followed by a short verbal intelligence test consisting of 20 vocabulary items (27).

B. Results

The distribution of scores on the CF subscale is presented in Table 3 along with the distribution of scores on the praise-success (PS) subscale for comparison. As would be anticipated on an "affirmation-negation" continuum, the scores on the CF subscale cluster at the high (negation) end of the scale while scores on the PS subscale tend toward the low (affirmation) end of the scale. That the CF subscale is internally homogeneous is indicated by the correlation of .34 between the four-item criticism subscale and the failure subscale. The CF subscale also appears to be relatively independent of the PS subscale since the correlation between these two subscales is low ($r = .08$).

For purposes of future investigation it may be noted that the CF subscale correlates .16 with the remote praise and .02 with help (for 500 cases, any correlation of .09 is statistically significant at the .05 level and a correlation of .12 is statistically significant at the .01 level.)

An interesting, but tentative, finding during pretesting an earlier form of the SIE provides some information on possible sources of variance in the criticism condition. At an earlier stage the criticism stem consisted of a peer agent rather than an adult as in the present form, and this earlier data indicated that peer criticism elicits fewer self-negative choices than the adult-induced criticism. Such a difference was *not* noted in the agent of praise, so it may be tentatively concluded that interpretations made to criticism are to some extent dependent on the person administering the criticism.

TABLE 3

FREQUENCIES, MEANS, AND STANDARD DEVIATIONS FOR CRITICISM-FAILURE AND PRAISE-SUCCESS SUBSCALES

Score	Criticism-Failure	Praise-Success
0	2	6
1	3	27
2	15	70
3	26	89
4	43	101
5	68	73
6	76	67
7	95	32
8	83	19
9	58	12
10	31	4
Mean	6.48	4.26
SD	2.10	2.03

Intelligence. The mean and standard deviation of the verbal intelligence scale were 9.62 and 2.58 respectively. This intelligence scale correlated .10 with the CF subscale ($<.02$) but did not relate to any of the other subscales.

IV. RELATIONSHIP BETWEEN FAILURE-AVOIDANT BEHAVIOR AND FAILURE-AVOIDANT INTERPRETATION

The primary aim of this section was to sutdy the relationship between *avoidant interpretation* and *avoidant behavior* in a failure situation. The secondary aim was to attempt a cross validation of pre-

vious behavioral relationships noted (Section II), using a slightly different method and a different population.

The operation for avoidant interpretation is *S*'s score on the CF subscale of the SIE, with a low score being referred to as avoidant. The operation for avoidant behavior is quite similar to that used in Section II—the trial at which *S* avoids the problem situation in which he is experiencing increasing failure by selecting a different goal.

Measures of interpretation and behavior were obtained according to the method to be described in order to test the hypothesis that failure-avoidant interpretation would be associated with failure-avoidant behavior. An attempt was also made to obtain other behavioral measures (used in Section II) and other test measures, e.g., intelligence, in order to clarify further the nature of avoidant behavior. However, the matter of crucial importance is the utilization of avoidance as reflected in interpretation and behavior.

A. Method

1. *Subjects*

The *S*s were 66 high school boys between the ages of 13 and 18, attending two summer schools.

2. *Materials*

a. Task 1 consisted of a multiple-choice type of symbol-substitution test. Each trial required approximately 15 seconds.

b. Task 2 was a card-sorting task consisting of a sorting box identical to that used in II and of three demonstration packs and six task packs of eight cards each. In all cases at least one concept was relevant for sorting. When a concept was relevant, a correct sort always produced four groups of two cards each. The demonstration packs were used to insure that *S* understood the principles of grouping. The first three task packs used on the first three trials contained five concepts (letter, object, number of dots, form, and color) but only one (letters) was relevant for grouping. For example, in the first pack all eight cards contained the same object (shoe), the same number of dots (three), the same form (triangle), and the same color (green), but differed with respect to letters (two cards with L, two with M, two with N and two with O). On the second pack the four nonrelevant concepts were again constant throughout but different from Pack 1. In other words, on the first three packs there was interpack variation, but no intrapack variation for all concepts except the relevant concept, namely letters. The fourth pack contained one relevant concept (letters), but the other four concepts changed on Trial 5 to indicate to *S* that a change in the situation had occurred. Simultaneously failing scores were given. Packs 5 and 6 contained five relevant concepts which could be used for sorting and were alternated from trial to trial, after Trial 5.

c. Sets of "norms" ostensibly used to compute *S*'s score.

d. Score sheets and record slips used to inform *S* of his score and make his choice of Task 1 or Task 2 after each trial.

3. *Procedure*

The group tests were administered in the following order: *(a)* The Sentence-Completion Method (11), *(b)* the Situational Interpretation Experiment, *(c)* the Thorndike-Gallup Verbal Intelligence scale (27). During the week following the group tests, each *S* was seen individually. In this experimental procedure *S* was read a set of instructions designed to emphasize the importance of succeeding on Tasks 1 and 2. The problems were presented as measures of decision-making ability. So that *S* would understand the value of any score obtained, he was informed in both Tasks 1 and 2 as follows: "In problems like this you will improve with practice; that is, each time you do it, you should get a better or a higher decision making score . . . your score should get higher as you go along. You should get up to a score of between 30 and 35 with practice which would be a good score for high school boys." The score pattern for Task 1 was 6, 14, 20, 31. After the fourth trial on Task 1, *E* said to S, "It looks as though you have learned to do this very well . . . you are doing very well on this problem, so let us take a look at Task 2 now (indicate). Later you might want to come back to this problem if you like." At this point *E* and *S* moved to Task 2, plainly marked at the opposite end of the table. The nature of the sorting task was clearly demonstrated to *S* before beginning. On the first three trials only

one cue was relevant for sorting, but at Trial 5, all five cues were relevant and simultaneously the scores leveled off and began to decrease. The score pattern for Task 2 was 8, 15, 21, 22, 22, 21, 19, 18, 17, 15. After each trial *S* was handed a slip containing his score, a space to check his preference for Task 1 or Task 2 on the next trial, and his expectancy for the next trial. The experiment was continued until *S* selected Task 1 or until the twelfth trial.

Although the present method was intentionally similar in most respects to that of the college study (Section II) there were two differences: *(a)* The cards were so constructed that *S* could not alternate his solution until the fifth trial, a modification designed to obtain a better measure of postfailure behavioral alternation (in the first study *Ss* varied in their prefailure alternating, thereby making postfailure analysis difficult). In practice, however, only a small proportion of *Ss* alternated after failure, so that further revision of the method is indicated in this respect. *(b)* Each *S* experienced success on the alternate task (Task 1), so that avoidance in the present study indicated not only avoiding the failure situation imposed in Task 2, but also going back to a previously successful problem or goal (in the first study some *Ss* switched to the alternate goal before Trial 5, apparently because they were curious about the nature of the other task; so that it seemed worth while to give each *S* a similar experience with the alternate task). Even with this modification, however, it was necessary to eliminate 12 *Ss* from analysis because they selected the alternate goal before the fifth trial.

B. Results

1. *Avoidant Behavior and Interpretation*

Table 4 indicates a significant relationship between avoidant interpretation and avoidant behavior. The interpretation score in Table 4 is based on the criticism-failure subscale score. When a similar table based only on the failure subscale score is considered, the relationship is also significant (<.01) even though this failure subscale consists of only four items.

We noted previously that an individual may avoid an inadequate interpretation of a negative event in a variety of ways, and actually the avoidant alternatives on the criticism-failure subscale present different defenses to avoid accepting the negative event. Therefore, we made an item analysis of the ten criticism-failure subscale items (and later on the other 20 items also) to note whether the selection of a given alternative related to either avoidant or nonavoidant behavior. In such an analysis the selection of an avoidant alternative may provide a good predictor which will discriminate between extreme behavioral groups, but selection of the opposite alternative on the same item need not be equally discriminating.

TABLE 4

RELATIONSHIP BETWEEN AVOIDANT INTERPRETATION AND AVOIDANT BEHAVIOR

Behavior	Avoidant Interpretation (1–7 on CF subscale)	Nonavoidant Interpretation (8–10 on CF subscale)
Avoidant (4–7)	19	6
Nonavoidant (8–13)	11	18

Corrected $\chi^2 = 6.401$; $p = <.02$.

Seventy per cent or more of the *Ss* who selected the following alternatives were behavioral avoidant *Ss*:

27. (Failure) "I must have been unlucky here."
19. (Failure) "This is too difficult for anyone to do."
18. (Criticism) "It's OK. If there is anything wrong, it's only an unlucky mistake."

Seventy per cent or more of the *Ss* who selected the following alternatives were behavioral nonavoidant *Ss*:

10. (Criticism) "This shows I'm no good here."
11. (Failure) "This shows I might not be so good."

In addition it was further noted that the following two items from the help subscale were selected by at least 70 per cent of the behavioral nonavoidant *Ss*:

12. (Help) "This shows how bad he thinks I am."
4. (Help) "It means I probably couldn't do it myself."

These results seem to lend further, more specific, support to our initial hypotheses regarding the processes underlying avoidant behavior. The alternatives selected by the nonavoidant *S* imply a willingness to lower his self-evaluation in reaction to failure or criticism while the alternatives selected by the avoidant *S* imply defenses against any such lowering of self-evaluation.

2. *Other Relationships*

No relationship was noted between verbal intelligence scores and avoidant behavior. There was not sufficient variation on behavioral alternation to replicate the rigidity-avoidance finding. However, the relationship between avoidance and expectancy was again noted ($<.05$) which provides another cross validation for this finding on a different population.

V. Relationship Between Avoidant Interpretation and Postcriticism Self-Evaluation

The primary aim of this section was to investigate the relationship between avoidant interpretation and self-evaluation following criticism. A secondary phase, identical in method to the primary phase, concerned interpretation and self-evaluation under praise conditions. In both their verbal comments (II) and interpretation alternatives selected (IV), behavior avoidant *Ss* apparently utilized defenses against lowering their self-evaluation following the occurrence of a negative condition. Therefore, in order to test this relationship more precisely, we employed a direct measure of self-evaluation as a dependent variable in the present study. Contrasting groups, representing avoidant and nonavoidant *Ss* on the CF subscale of the SIE, were individually placed in a performance situation and *S*'s self-evaluation response following *E*'s criticism on a given trial was measured. It may be noted that the hypothesis tested represents an explicit effort to validate the criticism-failure subscale.

It was hypothesized that avoidant *Ss* would be more likely to hold constant or increase their postcriticism evaluations while nonavoidant *Ss* would be more likely to decrease their postcriticism evaluations.

We have stated earlier that we would not make the assumption of adequacy-avoidance equivalence with respect to the praise or success conditions. Indeed, if one maintained a relative definition of avoidant interpretation, i.e., *S*'s implied rejection of the event, we might assume that an inadequate interpretation of praise would be avoidant. In light of this consideration, we applied the same approach outlined above to the problem of "praise-avoidant" interpretations and postpraise self-evaluation for preliminary exploratory purposes.

A. Method

1. *Subjects*

A total of 61 *Ss* were selected as follows:

Criticism condition. Two groups of *Ss* were selected on the basis of their criticism-failure subscale score. Eight *Ss* scoring between 0 and 2 were considered the extreme avoidant group and 18 *Ss* scoring between 8 and 10 were considered the nonavoidant group.

Praise condition. Two groups of *Ss* were selected on the basis of their praise-success subscale score. Seventeen *Ss* scoring between 8 and 10 were considered the avoidant group and 18 *Ss* scoring between 0 and 2 were considered to be the nonavoidant group.

2. *Materials*

A set of symbol-substitution tasks similar to the Rotter-Jensen group level-of-aspiration tests (20) was used. Each task consisted of a key containing 20 symbols represented by 20 alphabetical letters. On each trial *S* had to select and enter the correct letter from the key for each of 15 symbols. The mean time taken to complete each trial was about 45 seconds. For each of six trials the symbols were changed, but the problems were approximately equal in difficulty.

After each trial, *S* made an evaluation of how well he thought he was doing. This was done by means of a modified scalometer technique, on a sheet of paper containing 12 squares in a horizontal row. The 1st, 4th, 9th, and 12th squares were labeled with the words: "Very poor," "Not too well," "Fairly well," and "Very good," respectively. The words, "How well do you think you are doing " were printed at the top of the sheet. Just before *S* started another trial he indicated how well he expected to do on the coming trial. For this purpose the same rating sheets were used except that the words, "How well do you expect to do next time?" were printed on the top of the page.

3. *Procedure*

The usual safeguards were taken to assure that the *Es* were not aware of the group to which a subject belonged. In the instructions the coding problem was demonstrated to *S* and he was informed that his score was dependent upon his speed and accuracy. In this experiment *S was allowed to finish each problem and E recorded the time. Absolutely no indication of the quality of the subject's performance was given by E at any stage except through the occurrence of the praise or criticism* which was given after Trial 3 but before *S* was handed the evaluation scalometer. In all six trials were given. After each trial *S* evaluated his past performance and entered his expectancy for the next trial using materials described above. After Trial 3 *E* held *S*'s last performance sheet and made one of the following statements:

Criticism condition. "Well, now . . . you're not doing so good here . . . it doesn't look like you're doing this so well."

Praise condition. "Well, now . . . you're doing okay here . . . it looks like you're doing very well."

Emphasis through intonation was controlled carefully through practice and specific instructions to the *Es*. In both conditions, the critical adverb in the first half of the statement ("okay" and "not so good") was emphasized by elevation of the vocal pitch. In the second half of each statement (after the pause), emphasis on the adverb ("very well" and "not so well") was avoided by maintaining a monotone pitch. Avoidance of finality of statement was achieved through minimizing the pitch drop toward the end of the sentence.

4. *Subjects Discarded*

In this investigation it was essential to insure that any changes in evaluation could be attributed to the experimental conditions. But a major extraneous factor is introduced if the time *S* takes on each trial is sufficiently variable to become a basis for evaluation. The task was selected so that this variability would be reduced to a minimum while maintaining some interest value, but pretesting indicated that a few *Ss*' performance times were significantly variable to influence evaluation. Consequently, it was decided to discard all *Ss* for whom evaluation and performance times were significantly correlated. Employing a .05 level of significance as the cut-off point, this criterion eliminated 10 *Ss* from the initial sample of 61, 5 from each condition, thus leaving 21 in the criticism condition and 30 in the praise condition.

B. Results

1. *Criticism Condition*

Table 5 indicates that the hypothesis regarding a relationship between avoidant interpretation and postcriticism self-evaluation is strongly supported. The CF subscale was noted to have a similar, though nonsignificant, relationship to expectancy.

TABLE 5

RELATIONSHIP BETWEEN AVOIDANT INTERPRETATION AND POSTCRITICISM SELF-EVALUATION

Evaluation	Avoidant Interpretation (0–2 on CF subscale)	Nonavoidant Interpretation (8–10 on CF subscale)
Increased or same	6	1
Decreased	0	14

Corrected $\chi^2 = 12.863$; $p = < .001$.

2. *Praise Condition*

Analysis of the praise condition indicated that "praise avoidant" interpretations were significantly ($<.05$) related to failure to increase postpraise evaluation. No relationship was found between expectancy and evaluation in either of the subscales to absolute evaluation, a measure which will be considered in the next section.

VI. Relationship of Avoidant Interpretation to Overevaluation of Performance and Anxiety

The study described in the previous section was designed to minimize all feedback to *S* except *E*'s comment, i.e., *S* received no "knowledge of results" or score on trials preceding *E*'s comment. The present section was initially aimed to study the role of avoidant interpretation as a determinant of *S*'s reaction to criticism administered in relation to a given score pattern. More specifically, contrasting modes of information were presented to *S* by *E*'s interjecting criticism (negative evaluation) in relation to an increasing score pattern (positive accomplishment). We reasoned that *S*'s implicit choice between such contrasting modes as indicated by his subsequent self-evaluation should reflect interpretation tendencies, i.e., avoidant *Ss*' "accepting" the positive score rather than the negative evaluation, and conversely for nonavoidant *Ss*.

However, difficulties were encountered in developing a score pattern which both (*a*) induced feelings of accomplishment and (*b*) appeared sufficiently ambiguous that the negative evaluation given in relation to these scores was not immediately rejected. The score pattern finally adopted was more ambiguous than positive, i.e., *S* experienced slight improvement.

An inspection of data using this score pattern indicated an unanticipated finding: namely, that the effect of the interpretation variable was of major importance on the initial self-evaluation following the first (rather low) score (see Table 6). This interpretation-produced difference was in evidence throughout the six trials and therefore masked any possible effects of *E*'s evaluative comment. Therefore, we will present only the method and results based on the first three (pre-evaluation) trials since the experimental induction had a negligible effect.

This study will describe (*a*) the relationship of avoidant interpretation to both absolute evaluation and tendency to overevaluate performance, and (*b*) relationship between avoidant interpretation and anxiety as measured by the Taylor anxiety scale (24).

As the study was carried out, *Ss* were assigned to two conditions since praise was also employed in addition to criticism. However, since neither evaluation was effective and the pre-evaluative score patterns (for criticism—11, 12, 14 and for praise—13, 15, 14) did not produce group differences in either self-evaluation or performance during the first three trials, these conditions were combined for purposes of present analysis.

A. Method

1. *Subjects*

The *Ss* were 80 unselected high school boys who were attending a parochial summer school for purposes of raising their grades, rather than because of failing course work.

2. *Materials*

Eight symbol-substitution problems from the Rotter-Jensen group level-of-aspiration test (20). The lower line of symbols was removed so that

each problem contained 25 symbols to be completed. Evaluation and expectancy after each trial were recorded using the same materials described in Section V.

3. *Procedure*

The *Ss* were divided into two groups of 42 and 38 for purposes of varying group testing order. In the first group the testing order was: Sentence Completion Method (11); Taylor Anxiety Scale (24); Situational Interpretation Experiment; and a short verbal intelligence test (27). In the second group the order was identical except that the order of SIE and anxiety scale was reversed. Following the group testing, *Ss* were assigned to one of four subgroups to counterbalance for two conditions and two *Es* by matching on interpretation variable.

Experimental procedure was similar to that described in Section V except that *S* was told he would have a given amount of time in which to do each trial. This procedure permitted *E* to stop each *S* at the same predetermined number of symbols for a given trial. Thus, *S became aware of his score without the necessity of E's announcing it,* since the symbols were plainly numbered in consecutive order. The maximum hypothetical score was 25. The predetermined score patterns for the first three trials in both conditions were rather low (11, 12, 14, and 13, 15, 14) so that in effect both patterns may be considered as representing low, possibly failing, scores.

4. *Measures Employed in Analysis*

a. Personality measures.

1. CF subscale score
2. Anxiety scale score

b. Behavioral measures.

1. Absolute evaluation: actual box checked following a given trial (possible range from 0 to 12)
2. Corrected rate: number of correct symbols per minute. This was used to compute—
3. Over- and underevaluation: In order to obtain a measure of evaluation relative to performance which would permit identification of *Ss* who overevaluated or underevaluated their performance, the following procedure was employed: median cutting points were established for both the corrected rate and total evaluation scores for the first three trials. Using these two measures, *Ss* were appropriately placed into one of the four resulting quadrants. Therefore, *Ss* in the quadrant of high evaluation and low rate of performance were referred to as "overevaluators," and *Ss* in the quadrant of low evaluation and high rate of performance were referred to as "underevaluators" (*Ss* in both conditions were grouped together, since these measures are based on trials preceding *E*'s evaluative comment).

B. Results

1. *Relationships Between Personality Measures*

Pearsonian correlation coefficients computed between anxiety and criticism-failure subscale score yielded a correlation of $-.29$, which is statistically significant at less than the .01 level. That is, high anxiety is associated with failure-avoidant interpretation. This relationship must be qualified since a testing-order effect was noted. When SIE was given first, $r = -.55$ ($<.01$ for $N = 38$), and when SIE was given last, $r = -.20$ (not significant for $N = 42$).[6]

2. *Relationship Between Avoidant Interpretation and Evaluation*

a. Absolute evaluation. In order to note the effect of interpretation upon absolute evaluation, the initial evaluation scores of 22 avoidant *Ss* in the lower quartile on the CF subscale were compared with the scores of 21 nonavoidant *Ss* in the upper quartile on the same subscale.

As Table 6 indicates, there is a significant tendency for the avoidant *Ss* to give higher self-evaluation following the first score (a relationship which held throughout all six trials). That this relationship is not limited only to the extremes is indicated by the correlation between evaluation score on first trial and criticism-failure subscale score which was $-.21$ $r<.05$ with $N = 80$).

[6] Recently we have had an opportunity to replicate this finding, but in two samples the correlation between CF score and anxiety failed to reach significance.

TABLE 6

RELATIONSHIP BETWEEN AVOIDANT INTERPRETATION AND FIRST-TRIAL EVALUATION

Evaluation	Avoidant Interpretation (1–4 on CF subscale)	Nonavoidant Interpretation (8–10 on CF subscale)
Low	6	16
High	16	5

Corrected $\chi^2 = 8.383$; $p = <.01$.

b. Over- and underevaluation. Since the tendency to give a high evaluation carries more personality-related significance if it occurs in relation to low performance, the role of avoidant interpretation was inspected as it related to over- and underevaluation. Following the procedure previously described for determining these two extreme groups of evaluators left only 29 *Ss* in both groups, which required a median rather than a quartile split on the interpretational variable.

As Table 7 indicates, the CF score is highly related to tendency to under- or overevaluate one's performance. This tendency for the avoidant *S* to overevaluate his performance is consonant with the general characteristics of this group in other respects. There was no relationship whatsoever between either the PS subscale or the anxiety scale to over- and underevaluation.

TABLE 7

RELATIONSHIP BETWEEN AVOIDANT INTERPRETATION AND OVER- AND UNDEREVALUATION

Group	Avoidant Interpretation (1–7 on CF subscale)	Nonavoidant Interpretation (8–10 on CF subscale)
Underevaluators	2	12
Overevaluators	12	3

Corrected $\chi^2 = 10.029$; $p = <.002$.

Nonavoidant *Ss* tended to shift their evaluations more (<.10) than did avoidant *Ss*. No relationship was noted between avoidant interpretation and expectancy.

VII. DISCUSSION

A. Avoidant Behavior

In considering the results described in the preceding sections it appears that the behavior-avoidant *S* employs defenses which at once (*a*) distort his evaluation of his capability (setting excessively high goals and overevaluating his performance), and (*b*) restrict the reception of potentially useful information from the environmental situation (maintaining his post-criticism self-evaluation and making fewer shifts in evaluation). This defensive pattern may partially account for his relative inability to try out other solutions, as well as for his disrupted performance—this latter consequence resulting from the fact that he does receive *some* feedback; and when such negative information is received, it is poorly assimilated. Such disruption in transforming evaluational feedback into more adaptive behavior is very similar to the behavior of high-anxious *Ss* in their reactions to failure as described by Mandler and Sarason (15). Restriction in the assimilation of information has also been described as characteristic of a group of "overcontrollers" described by Block and Thomas (3) who regard such a pattern as "metastable."

In light of this general relationship between personality factors and problem-solving behavior found here and in other investigations, it would seem that subsequent research might be appropriately directed toward specifying these defensive patterns more specifically. Once such patterns have thus been objectively delineated, work may then proceed on the crucial problem of determining the conditions which give rise to the development of such avoidant patterns.

B. Avoidant Interpretation

The results obtained using the interpretation measure indicate that an individual's interpretation or perception of a negative situation is an important determinant of subsequent responses. Previous attempts to measure the nature of an individual's interpretation of a situation have been primarily carried out using indirect approaches, e.g., TAT. That is, the analysis of a TAT protocol, whether for clinical or experimental purposes, frequently consists of inferences regarding how a person perceives a

certain situation. Whether one is dealing with maladjusted patients or subjects in a conditional experiment, it is equally true that the responses of such persons are not comparable unless the event has been interpreted in a similar way. An investigation described by Atkinson (1) which aimed at determining the picture properties eliciting certain interpretations is a case in point.

In light of these considerations we believe that it is necessary to distinguish between the measurement of (*a*) an individual's tendencies to interpret or organize a situation, e.g., a TAT picture, and (*b*) his available reactions to this event once it has been interpreted in a given way. That is, if one wanted to measure an individual's prepotent organizational tendencies, he should probably select a highly ambiguous stimulus; however, if the investigator desired to assess the individual's reactions to certain events, it might be more appropriate to select more highly structured stimulus materials. This latter procedure may be exemplified by a hypothetical procedure of presenting Card 6BM in the Murray series (the "mother-son" card) with the structuring sentence, "This man has just lost his job and is talking to his mother about it." It should be made clear that we do not assume any necessary one-to-one relationship between interpretation and behavior, but rather would maintain that once the interpretation of the situation has been measured (and, if possible, controlled) that the behavior may be studied more accurately.

The present use of a forced-choice single dimensional method for assessing interpretations is limited in that the reference system employed (adequacy-inadequacy in the present case) may not be equally appropriate for all *Ss*. This difficulty is evidenced by the relative lack of predictive precision whenever it was necessary to split *Ss* at the median on the interpretation measure (see Table 4). However, in cases where the number of *Ss* permitted the use of extreme avoidant groups (e.g., 0-2 and 8-10 as in Table 5) the resulting efficiency was greatly increased. In other words, it seems likely that for those *Ss* who score in the 3-7 range, the reference system being employed is not especially relevant. However, the methodological paradigm of the SIE should lend itself to studying the probability that other conditions, e.g., authority situations, will be interpreted by other reference systems, e.g., aggression. Tentative evidence for the utility of the SIE measure for other conditions is noted in the positive results reported with the praise-success subscale (Section V).

We have also briefly noted the effect of the person or the agent in the situational stem. That is, the differences in interpretation produced by peer-induced and adult-induced criticism suggest that the method might be useful for measuring indirectly the meaning or significance which a given figure in the situation may have for one individual or for a group.

The implications of Sections V and VI to research in the area of individual variation in reaction to criticism, failure, praise, and success may be briefly considered. Experimenters in the area of social motivation have for some time been concerned with the fact, noted by Grace, that "that which might act as blame for one individual might act as praise for another" (9, p. 77). Utilizing constructs such as introversion-extroversion (26) and ascendancy-submission (25) previous attempts have focused on accounting for performance variation, implicitly assuming that some change in self-evaluation has intervened. In using the present approach anchored in this intervening process, we have indirect evidence (Sections II, V) to support the contention that *Ss* who refuse to lower their evaluation following failure or criticism perform more poorly.

That interpretation scores on the criticism-failure subscale were associated with initial absolute evaluation (Section VI) is not surprising when it is noted that this evaluation followed an initial, fairly low score which may have been interpreted as failing. These initial differences in absolute evaluation masked any hypothesized changes in relative evaluation—which leads to the speculation that the interpretation variable appears to have its maximal effect in reaction to the *first cue* provided, in this case, a low score. A similar primacy of effect has been noted in connection with differences in response attributable to an anxiety variable (16), in that differences between anxiety groups were "diluted" after the first trial.

In considering the findings from Sections V and VI it is important to recall that in the former, *S* received no scores or other evaluational information until *E* interjected a comment, and prior to this, there were no differences between subgroups in absolute evaluation. In Section VI when scores were given, differences in evaluation were present from the outset. In attempting to synthesize findings from these two studies, it would appear that the nonavoidant *Ss* are *sensitized to the initial evaluational cues in a new situation whether such cues come from their scores or from E*. This heightened sensitivity characteristic of nonavoidant *Ss* may be viewed in contrast to the previously described defensively-restrictive characteristic of the avoidant *Ss*. In overevaluating their performance (Section VI) the avoidant *Ss* bear a certain resemblance to the overly confident *Ss* described by Block and Petersen (2) as rigid and dogmatic. Conversely a certain similarity in person-

ality pattern is noted between our nonavoidant *Ss* and the overly cautious *Ss* described by these authors as tending toward introspection and self-abasement. The present referents for avoidant and nonavoidant interpretation might also be considered as reflecting different means of dealing with blame-assignment (17).

C. Relationship of Avoidant Interpretation to Intelligence

The relationship between low intelligence and avoidant interpretation must be qualified. But, even if such a low-order relationship is verified, this does not necessarily detract from the value of the interpretation measure. That is, it may well be true that one of the possible antecedents for the adoption of avoidant interpretation is a deficiency in problem-solving ability. That intelligence is not the only factor involved in avoidant interpretation is to be noted in the fact that it is not related to behavioral avoidance (Section IV).

D. Concluding Comments

From a conceptual point of view our findings represent what Cronbach and Meehl have called a "nomological net" (7) which is anchored primarily in the behavior of failure-avoidance and secondarily in the behavioral measure of self-evaluation. The present results are implicit evidence for the value of considering the psychological situation in attempting to predict the reactions occurring in that situation.

Certain shortcomings and limitations of the present approach should be mentioned. In our present exploratory attempt to measure interpretations we have used a relatively imprecise instrument, with the disadvantage that the avoidant alternatives are not necessarily homogeneous regarding defenses. We have not demonstrated any independent criteria for assessing the utility of failure-avoidant behavior although the postexperimental interviews indicated that the failure stimulation was successfully induced. Further, we have implicitly assumed linearity in all of our measures in our use of chi-square analysis. However, in this exploratory effort we hoped that the disadvantages in lack of precision would be outweighed by the advantages of gaining a better understanding of the problem.

The reader has probably noted that in our attempt to demonstrate interpretation-produced variation in behavior we have explicitly omitted any consideration of certain other personality variables of obvious importance, e.g., psychological need or motive. The relationship of interpretational variables to other constructs such as psychological need and generalized expectancy (18) and their combined effect are problems deserving further concerted investigation.

To illustrate the conceptual complexity of this problem, Atkinson's recent description of an attempt to measure fear of failure by scoring imaginative productions may be noted (1). Although this fear-of-failure measure appears to be operationally similar to the present avoidant interpretation measure, Atkinson conceptualizes this construct as a "negative" motive with properties opposite to those of achievement motive. We cite this example not as an "opposing theory," since we do not feel justified in presenting a complete theoretical conception of failure-avoidance at this time, but rather to point out the necessity for further investigation. We feel strongly, however, that such investigation requires relevant behavioral anchor points in order to develop theoretical conceptions for the understanding of avoidant processes. In the present investigations the measures of avoidant behavior and self-evaluation appear to have served this purpose.

VIII. Summary

A series of hypotheses derived from the problem-solving behavior and verbalizations of individuals employing avoidant mechanisms were tested and generally supported. These findings, which appear to be consonant with general observations regarding the operation of defensive processes, may be summarized in terms of two constellations of relationships.

The *Ss* who utilized failure-avoidant behavior in a problem-solving situation were found to: *(a)* set higher goals, *(b)* use fewer alternative solutions in attempting to solve the problem, and *(c)* perform less effectively after failure. These relationships were noted in two identical studies using male college *Ss*. Following leads which emerged from the postexperimental interviews, a measure of an individual's tendency to avoid interpreting negative situations in terms of personal inadequacy was constructed.

In employing this interpretational measure with high school boys, *Ss* who

made avoidant interpretations of failure and criticism were found to *(a)* avoid failure in a problem-solving situation, *(b)* maintain their self-evaluation after criticism, *(c)* state higher evaluations following a low "failing" score, and *(d)* overevaluate their performance.

Though these generalizations must be limited to college and high school male populations studied, the results are based on separate studies using similar measures, and in at least one case—behavioral avoidance and high goal-setting—we were able to replicate this relationship in both populations. These relationships appear to integrate a number of experimental and clinical observations between personality characteristics and problem-solving behavior under negative conditions.

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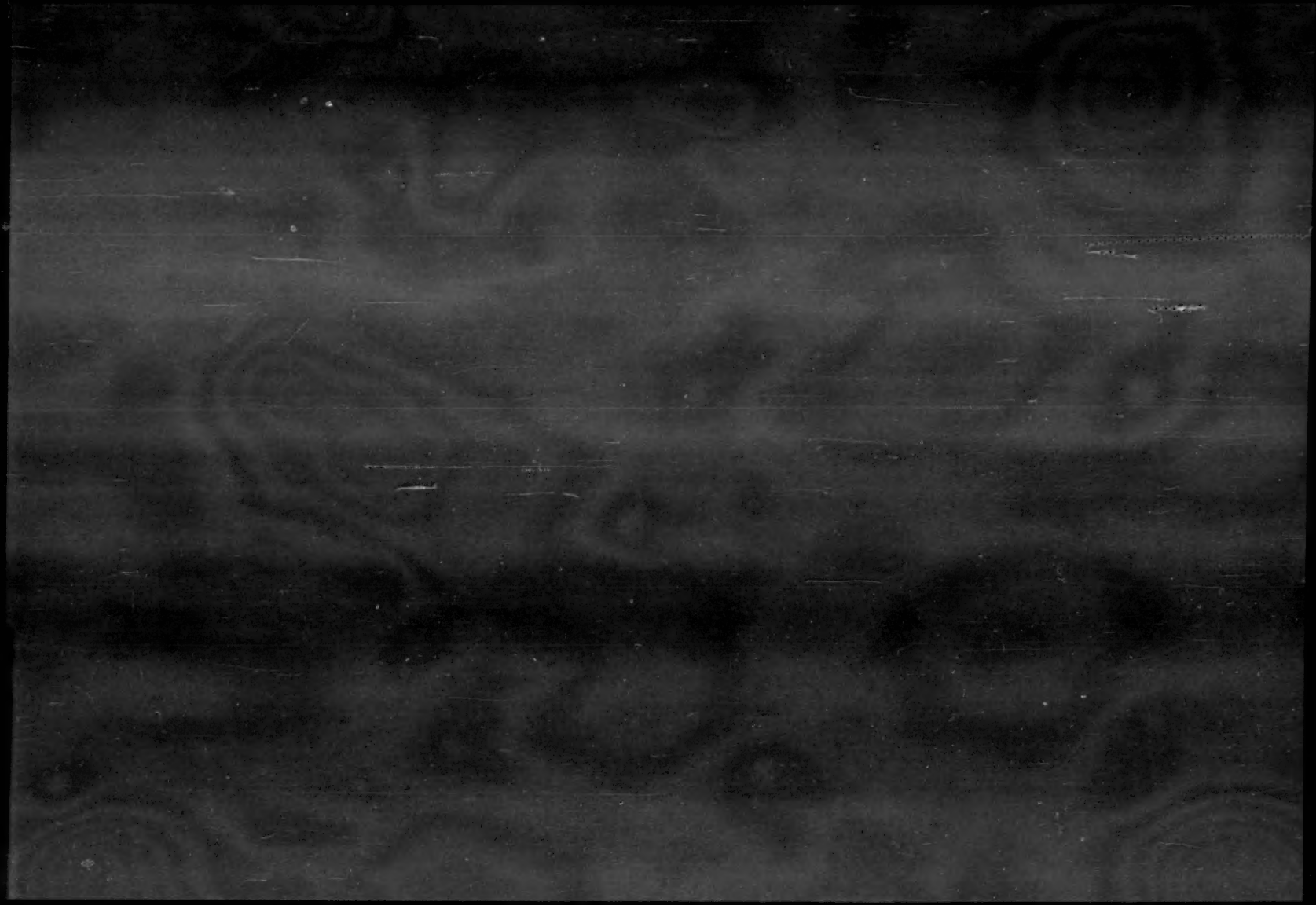
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